4th International Workshop on Assurance Cases for Software-intensive Systems (ASSURE 2016)

September 20, 2016. **Trondheim, Norway**

Call for Papers

Software plays a key role in high-risk systems, e.g., safety-, security-, and mission-critical systems. Several certification standards/guidelines now recommend and/or mandate the development of assurance cases for software-intensive systems, e.g., defense (UK MoD DS-0056), aviation (CAP 760 and the FAA's operational approval guidance for unmanned aircraft systems), automotive (ISO 26262), and healthcare (FDA total product lifecycle guidance for infusion pumps). As such, there is a need to develop models, techniques and tools that target the development of assurance arguments for software.

The goals of the 2016 Workshop on Assurance Cases for Software-intensive Systems (ASSURE 2016) are to:

(a) explore techniques for creating/assessing assurance cases for software-intensive systems;
(b) examine the role of assurance cases in the engineering lifecycle of critical systems;
(c) identify the dimensions of effective practice in the development and evaluation of assurance cases;
(d) investigate the relationship between dependability techniques and assurance cases; and,
(e) identify critical research challenges and define a roadmap for future development.

We solicit high-quality contributions (research, practice, tools, and position papers) on the application of assurance case principles and techniques to assure that the dependability properties of critical software-intensive systems have been met.

Papers should attempt to address the workshop goals in general. Topics of interest include, but are not limited to:

- **Assurance issues in emerging paradigms**, e.g., adaptive and autonomous systems, including self-driving cars, unmanned aircraft systems, complex health care and decision making systems, etc.
- **Standards**: Industry guidelines and standards are increasingly requiring the development of assurance cases, e.g., the automotive standard ISO 26262, and the FDA guidance on the total product lifecycle for infusion pumps.
- **Certification and regulations**: The role and usage of assurance cases in the certification of critical systems, as well as to show compliance to regulations.
- **Dependable architectures**: How do fault-tolerant architectures and design measures such as diversity and partitioning relate to assurance cases?
- **Dependability analysis**: What are the relationships between dependability analysis techniques and the assurance case paradigm?
- **Tools**: Using the output from software engineering tools (testing, formal verification, code generators) as evidence in assurance cases / using tools for the modeling, analysis and management of assurance cases.
- **Application of formal techniques** to create and analyze arguments.
- **Modeling and meta modeling**: Representation of structured arguments through metamodels, such as OMG's Structured assurance Case Metamodel (SACM).
- **Assurance of software quality attributes**, e.g., safety, security and maintainability as well as dependability in general, including tradeoffs, and exploring notions of the quality of assurance cases themselves.
- **Domain-specific assurance issues**, in domains such as aerospace, automotive, healthcare, defense and power.
- **Reuse and modularization**: Contracts and patterns for improving the reuse of assurance case structures.
- **Other topics**, including the exploration of relevant techniques for assurance cases for real-time, concurrent, and distributed systems; and the connections between the Goal Structuring Notation for assurance cases and goal-orientation from the requirements engineering community.

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Submission Guidelines

- All papers must be original work not published, or in submission, elsewhere. Papers should be submitted only as a PDF file. Please verify that papers can be reliably printed and viewed on screen before submission.
- Papers should conform to the LNCS paper formatting guidelines.
  - Regular (research, or practice) papers can be up to 12 pages long, including figures, references, and any appendices.
  - Tools papers can be up to 10 pages long, including figures, references, and any appendices. Note that authors of accepted tools papers will be expected to give a demonstration of the tool(s) at the workshop.
  - Position papers can be between 4 and 6 pages long, including figures, references, and any appendices.
- Papers will be peer-reviewed by at least 3 program committee members, and accepted papers will be published in the SAFECOMP 2016 Workshop proceedings, to be published by Springer in the Lecture Notes in Computer Science (LNCS) series.

Submit your paper electronically by May 17, 2016, through the workshop website:

http://ti.arc.nasa.gov/events/assure2016/

Important Dates

Paper submission	May 17, 2015
Author notification	June 7, 2015
Camera-ready Papers	June 20, 2015
Workshop	September 20, 2015

Workshop Organizers

Ewen Denney, SGT / NASA Ames Research Center, USA
Ibrahim Habli, University of York, UK
Ganesh Pai, SGT / NASA Ames Research Center, USA

Program Committee – To be confirmed. Please see the ASSURE 2016 Website.